



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/525,463

02/24/2005

Moon-Shik Kang

21C-0187

5352

23413

7590

09/20/2006

CANTOR COLBURN, LLP  
55 GRIFFIN ROAD SOUTH  
BLOOMFIELD, CT 06002

EXAMINER

CABUCOS, MARIE G

ART UNIT

PAPER NUMBER

2163

DATE MAILED: 09/20/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/525,463

Applicant(s)

KANG, MOON-SHIK

Examiner

Marie Antoinette Cabucos

Art Unit

2163

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 2/24/2005 and amendment filed on 7/05/06.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on 24 February 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

1. The amendment filed 7/05/2006 is objected to under 35 U.S.C. 132(a) because it introduces new matter into the disclosure. 35 U.S.C. 132(a) states that no amendment shall introduce new matter into the disclosure of the invention. The added material, which is not supported by the original disclosure, is the addition of "the sensing section **wirelessly connected** to the power transforming section" phrase in claims 1, 5 and 17. Therefore, the rejection of claims 1-17 is reaffirmed as stated below.

Applicant is required to cancel the new matter in the reply to this Office Action.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Or

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000.

Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

3. Claims 1, 2, 5-7 and 13-17 are rejected under 35 U.S.C. 102(b) as being unpatentable by Michael R. Praiswater (US Patent no. 5,939,830).

Regarding claims 1 and 2, Praiswater discloses in figure 5 an apparatus for supplying power comprising a switching section (S1) controlling an output of a direct current voltage (+V) source inputted from external; a power transforming section (L1, 130, S2, S3, C1) for converting the direct current voltage source from the switching section into an alternating current voltage source and transforming (L1) the alternating current voltage source; a control section (120) for outputting a switching signal so as to control an output of a constant current supplied to a lamp unit in response to a dimming signal inputted from an external; a sensing section (146) for sensing variation of the alternating current voltage source supplied to the lamp unit; and a detecting section for comparing a sensing signal provided from the sensing section with a predetermined reference signal to output a detecting signal to the control section, thereby maintaining the constant current to be supplied to the lamp unit (col. 7, lines 36-39); and wherein the sensing section senses variations of current and voltage of the alternating current voltage source supplied to both end terminals of the lamp unit.

4. Regarding claim 5, Praiswater discloses in figure 5 a backlight assembly comprising a lamp driving section (L1, 130, S2, S3, C1) for converting a direct current voltage source inputted from an external into an alternating current voltage source and transforming (L1) the converted alternating current voltage source; a light emitting

section (110) for emitting a light in response to the transformed alternating current voltage source, the light emitting section having a lamp unit that receives a high voltage of an alternating current voltage source through at least one end terminal; and a light control section (120) for increasing a brightness of the light, wherein the lamp driving section comprises a control section (120) for outputting a switching signal so as to control an output of a constant current supplied to the lamp unit in response to a dimming signal inputted from an external, the control section being operated in response to on and/or off signals from the external; a switching section (S1) for controlling an output of a direct current voltage source in response to the switching signal; a power outputting section (S2, S3) for converting the direct current voltage source from the switching section into the alternating current voltage source, transforming (L1) the converted alternating current voltage source into an alternating current voltage source having a constant voltage to provide the alternating current voltage source having the constant voltage to the lamp unit; a sensing section (146) for sensing variation of the alternating current voltage source supplied to the lamp unit; and a detecting section for comparing a sensing signal provided from the sensing section with a predetermined reference signal to output a detecting signal to the control section, thereby maintaining the constant current to be supplied to the lamp (col. 7, lines 36-39).

5. Regarding claims 6 and 7, Praiswater discloses in figure 5 a backlight assembly according to claim 5, wherein the lamp unit comprises an external electrode fluorescent lamp having two electrodes, at least one electrode of the two electrodes being disposed

Art Unit: 2163

on outer surface thereof; and wherein the lamp unit comprises a plurality of external electrode fluorescent lamps connected to each other in parallel (col. 4, lines 5-9).

6. Regarding claims 13 and 14, Praiswater discloses in figure 5 a backlight assembly according to claim 5, wherein the power outputting section provides a constant voltage of the transformed alternating current voltage source to both end terminals of the lamp unit, the constant voltage having positive and negative polarity levels equal to each other; wherein the power outputting section provides a constant voltage of the transformed alternating current voltage source to both end terminals of the lamp unit, the constant voltage having differences between a highest level and a lowest level of the transformed alternating current voltage source equal to each other (col. 7, lines 25-36).

7. Regarding claim 15 and 16, Praiswater discloses in figure 5 a backlight assembly according to claim 5, (assumed claim 15 is dependent on claim 5) wherein the lamp driving section further comprises a diode (D1) having a cathode connected to an output terminal of the switching section and an anode connected to a ground, for blocking a rush current from the power outputting section to the switching section; and wherein the lamp driving section further comprises a switching device driving section for amplifying a signal so as to adjust a level of the alternating current voltage source provided from the control section and providing the amplified signal to the switching section (col. 5, lines 1-4).

8. Regarding claim 17, Praiswater discloses in figure 5 an LCD apparatus comprising a backlight assembly (col. 4, lines 1-2) having a lamp driving section (L1,

Art Unit: 2163

130, S2, S3, C1) for converting a direct current voltage source inputted from an external into an alternating current voltage source and transforming (L1) the converted alternating current voltage source; a light emitting section (110) for emitting a light in response to the transformed alternating current voltage source, the light emitting section having a lamp unit that a plurality of external electrode fluorescent lamps are connected to each other in parallel, each of the external electrode fluorescent lamps having at least one external electrode that receives a high voltage of an alternating current voltage source (col. 4, lines 5-9); and a light control section (120) for increasing a brightness of the light provided from the light emitting section; and a display unit disposed on the light control section, for receiving the light from the light emitting section through the light control section and displaying an image (col. 4, lines 9-16), wherein the lamp driving section comprises a control section (120) for outputting a switching signal so as to control an output of a constant current supplied to the lamp unit in response to a dimming signal inputted from an external, the control section being operated in response to on and/or off signals from the external; a switching section (S1) for controlling an output of a direct current voltage source in response to the switching signal; a power outputting section (S2, S3) for converting the direct current voltage source from the switching section into the alternating current voltage source, transforming (L1) the converted alternating current voltage source into an alternating current voltage source having a constant voltage to provide the alternating current voltage source having the constant voltage to the lamp unit; a sensing section (146) for sensing variation of the alternating current voltage source supplied to the lamp unit; and

Art Unit: 2163

a detecting section for comparing a sensing signal provided from the sensing section with a predetermined reference signal to output a detecting signal to the control section, thereby maintaining the constant current to be supplied to the lamp unit(col. 7, lines 36-39).

9. Claims 1-17 rejected under 35 U.S.C. 102(e) as being unpatentable by Yung-Yi Hsu (US Patent no. 6,693,396).

Regarding claim 1, Hsu discloses in figure 1 an apparatus for supplying power comprising a switching section (Q13) controlling an output of a direct current voltage ( $V_{DC}$ ) source inputted from external; a power transforming section (L1, Q11, Q12, C11) for converting the direct current voltage source from the switching section into an alternating current voltage source and transforming (L1) the alternating current voltage source; a control section (120) for outputting a switching signal so as to control an output of a constant current supplied to a lamp unit in response to a dimming signal inputted from an external; a sensing section (R1) for sensing variation of the alternating current voltage source supplied to the lamp unit; and a detecting section for comparing a sensing signal provided from the sensing section with a predetermined reference signal to output a detecting signal to the control section, thereby maintaining the constant current to be supplied to the lamp unit.

10. Regarding claims 2-4, Hsu discloses in figure 1 an apparatus for supplying power wherein the sensing section (R1) senses variations of current and voltage of the alternating current voltage source supplied to both end terminals of the lamp unit;



Art Unit: 2163

wherein the sensing section comprises a coil shape; and wherein the power transforming section (T1) comprises a transformer having a primary winding and a secondary winding (Ws), for transforming the alternating current voltage source and the sensing section is disposed adjacent to the secondary winding of the transformer.

11. Regarding claim 5, Hsu discloses in figure 1 a backlight assembly comprising a lamp driving section (L1, 120, Q11, Q12, Q13, C1, T1) for converting a direct current voltage source inputted from an external into an alternating current voltage source and transforming (L1) the converted alternating current voltage source; a light emitting section (102) for emitting a light in response to the transformed alternating current voltage source, the light emitting section having a lamp unit that receives a high voltage of an alternating current voltage source through at least one end terminal; and a light control section (120) for increasing a brightness of the light, wherein the lamp driving section comprises a control section (120) for outputting a switching signal so as to control an output of a constant current supplied to the lamp unit in response to a dimming signal inputted from an external, the control section being operated in response to on and/or off signals from the external; a switching section (Q13) for controlling an output of a direct current voltage source in response to the switching signal; a power outputting section (Q11, Q12) for converting the direct current voltage source from the switching section into the alternating current voltage source, transforming (L1) the converted alternating current voltage source into an alternating current voltage source having a constant voltage to provide the alternating current voltage source having the constant voltage to the lamp unit; a sensing section (R1) for

sensing variation of the alternating current voltage source supplied to the lamp unit; and a detecting section for comparing a sensing signal provided from the sensing section with a predetermined reference signal to output a detecting signal to the control section, thereby maintaining the constant current to be supplied to the lamp.

**12.** Regarding claims 6-9, Hsu discloses in figure 1 a backlight assembly according to claim 5, wherein the lamp unit comprises an external electrode fluorescent lamp having two electrodes, at least one electrode of the two electrodes being disposed on outer surface thereof; and wherein the lamp unit comprises a plurality of external electrode fluorescent lamps connected to each other in parallel; wherein the sensing section is connected to each of the external electrode fluorescent lamps; and wherein the number of the detecting section is equal to that of the sensing section (col. 1, lines 44-65).

**13.** Regarding claims 10-12, Hsu discloses in figure 1 a backlight assembly according to claim 5, wherein the power outputting section comprises a transformer (T1) having a primary winding and a secondary winding, for boosting the converted alternating current voltage source and the sensing section senses the sensing signal from the secondary winding of the transformer; wherein the sensing section comprises a coil shape; and wherein the sensing section is disposed adjacent to the secondary winding of the transformer, senses a voltage based on an electric field induced in response to a power of the secondary winding and provides the sensed voltage to the detecting section.

**14.** Regarding claims 13 and 14, Hsu discloses in figure 1 a backlight assembly according to claim 5, wherein the power outputting section provides a constant voltage of the transformed alternating current voltage source to both end terminals of the lamp unit, the constant voltage having positive and negative polarity levels equal to each other; wherein the power outputting section provides a constant voltage of the transformed alternating current voltage source to both end terminals of the lamp unit, the constant voltage having differences between a highest level and a lowest level of the transformed alternating current voltage source equal to each other (col. 1, lines 44-65).

**15.** Regarding claim 15 and 16, Hsu discloses in figure 1 a backlight assembly according to claim 5, (assumed claim 15 is dependent on claim 5) wherein the lamp driving section further comprises a diode (D1) having a cathode connected to an output terminal of the switching section and an anode connected to a ground, for blocking a rush current from the power outputting section to the switching section; and wherein the lamp driving section further comprises a switching device driving section for amplifying a signal so as to adjust a level of the alternating current voltage source provided from the control section and providing the amplified signal to the switching section.

**16.** Regarding claim 17, Hsu discloses in figure 1 an LCD apparatus comprising a backlight assembly (col. 1, lines 22-23) having a lamp driving section (L1, 120, Q11, Q12, Q13, C1, T1) for converting a direct current voltage source inputted from an external into an alternating current voltage source and transforming (L1) the converted alternating current voltage source; a light emitting section (102) for emitting a light in

Art Unit: 2163

response to the transformed alternating current voltage source, the light emitting section having a lamp unit that a plurality of external electrode fluorescent lamps are connected to each other in parallel, each of the external electrode fluorescent lamps having at least one external electrode that receives a high voltage of an alternating current voltage source (col. 1, lines 44-65).; and a light control section (120) for increasing a brightness of the light provided from the light emitting section; and a display unit disposed on the light control section, for receiving the light from the light emitting section through the light control section and displaying an image (col. 1, lines 44-65)., wherein the lamp driving section comprises a control section (120) for outputting a switching signal so as to control an output of a constant current supplied to the lamp unit in response to a dimming signal inputted from an external, the control section being operated in response to on and/or off signals from the external; a switching section (Q13) for controlling an output of a direct current voltage source in response to the switching signal; a power outputting section (Q11, Q12) for converting the direct current voltage source from the switching section into the alternating current voltage source, transforming (L1) the converted alternating current voltage source into an alternating current voltage source having a constant voltage to provide the alternating current voltage source having the constant voltage to the lamp unit; a sensing section (R1) for sensing variation of the alternating current voltage source supplied to the lamp unit; and a detecting section for comparing a sensing signal provided from the sensing section with a predetermined reference signal to output a detecting signal to the control section, thereby maintaining the constant current to be supplied to the lamp unit.

17. Claim 5 is rejected under 35 U.S.C. 102(b) as being unpatentable by Beom Young Hwang (US Publication no. 2002/0003525 of record).

Hwang discloses in figure 4 a backlight assembly comprising a lamp driving section (320, 330) for converting a direct current voltage source inputted from an external into an alternating current voltage source and transforming (L1) the converted alternating current voltage source; a light emitting section (350) for emitting a light in response to the transformed alternating current voltage source, the light emitting section having a lamp unit that receives a high voltage of an alternating current voltage source through at least one end terminal; and a light control section (321) for increasing a brightness of the light, wherein the lamp driving section comprises a control section (321) for outputting a switching signal so as to control an output of a constant current supplied to the lamp unit in response to a dimming signal inputted from an external, the control section being operated in response to on and/or off signals from the external; a switching section (Q1) for controlling an output of a direct current voltage source in response to the switching signal; a power outputting section (Q2, Q3) for converting the direct current voltage source from the switching section into the alternating current voltage source, transforming (L1) the converted alternating current voltage source into an alternating current voltage source having a constant voltage to provide the alternating current voltage source having the constant voltage to the lamp unit; a sensing section (370) for sensing variation of the alternating current voltage source supplied to the lamp unit; and a detecting section (380) for comparing a sensing signal provided from the sensing section with a predetermined reference signal to output a

Art Unit: 2163

detecting signal to the control section, thereby maintaining the constant current to be supplied to the lamp.

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

### ***Pertinent Prior Art***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Prior art of record to Oda et al (US Patent no. 5,629,588) disclose a lighting circuit utilizing DC power for a discharge lamp utilizing AC power.

Prior art of record to Yamashita et al (US Patent no. 5,663,613) disclose a lighting circuit for discharge lamp.

Art Unit: 2163

Prior art of record to Ganesh Arun (US Patent no. 6,051,940) disclose a safety control circuit for detecting the removal of lamps from a ballast and reducing the through-lamp leakage currents.

Prior art of record to Hwangsoo Choi (US Patent no. 6,307,765) disclose a method and apparatus for controlling minimum brightness of a fluorescent lamp.

Prior art of record to Nakatsuka et al (US Publication no. 2002/0121865) disclose a drive device and drive method for a cold cathode fluorescent lamp.

Prior art of record to Kazuo Kono (US Publication no. 2003/0151931) disclose a self oscillation circuits.

### ***Inquiry***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marie Antoinette Cabucos whose telephone number is 571-272-8582. The examiner can normally be reached on 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Don K. Wong can be reached on (571) 272-1834. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Marie Antoinette Cabucos  
Examiner  
Art Unit 2163

A handwritten signature in black ink, appearing to read 'Don Wong', with a large, stylized loop at the end.

**DON WONG**  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2100